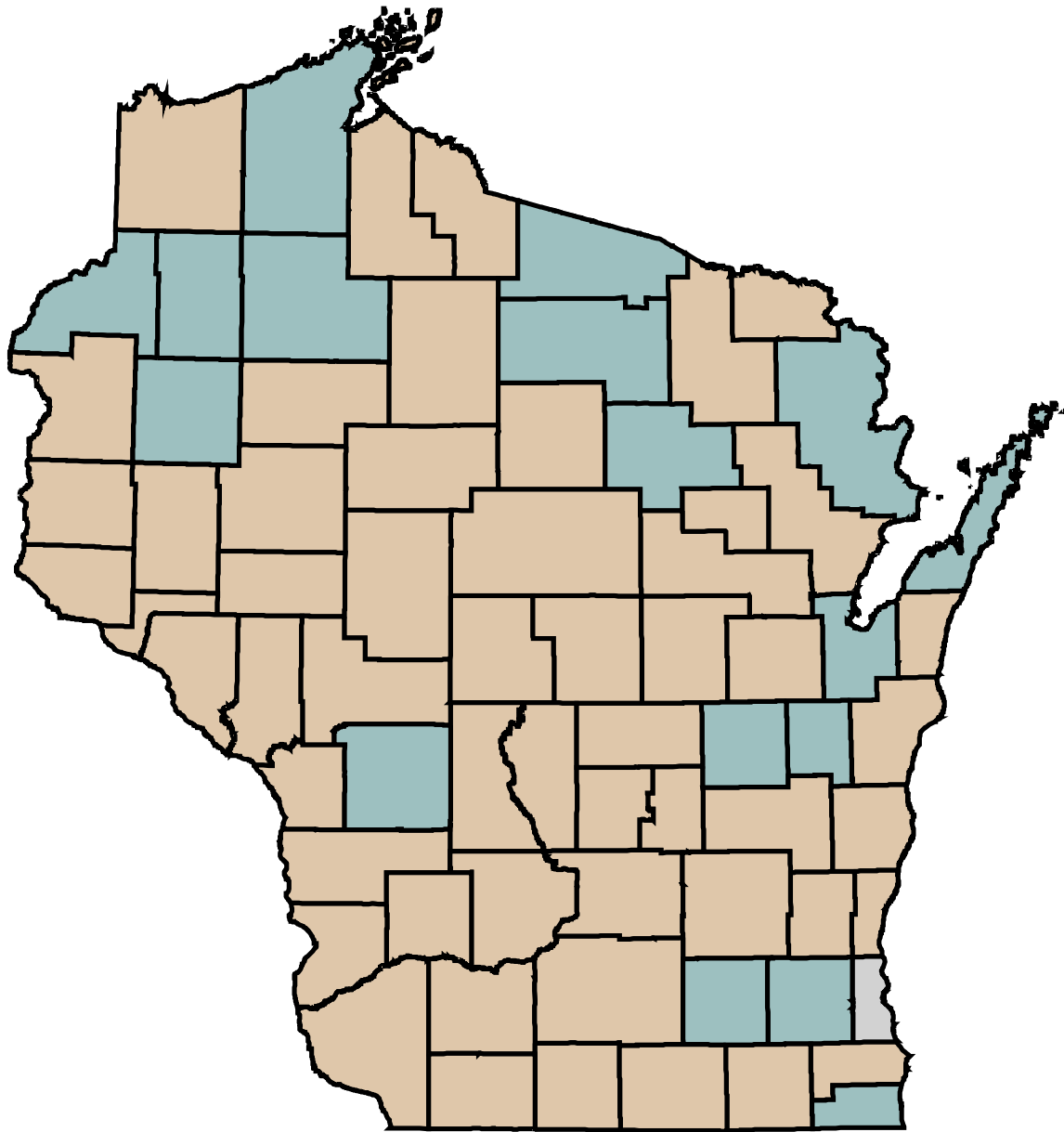


Wetland Protection Standards



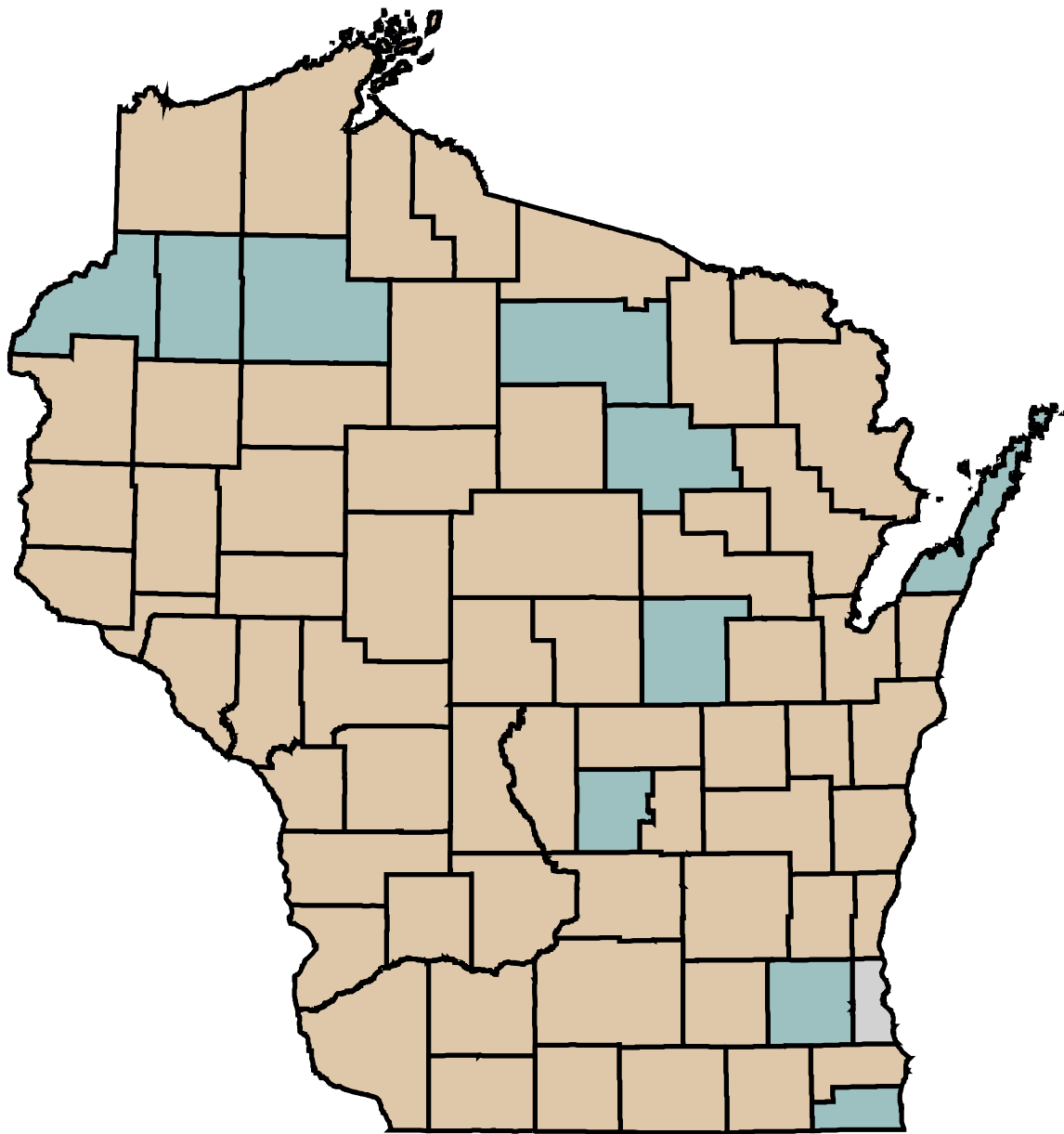
County is not regulated under NR 115

County does not have special provisions for wetland protection beyond standard shoreland wetland requirements.

County has adopted special wetland protection provisions, such as setbacks, permit requirements, etc.



Wetland Setback Standards



County is not regulated under NR 115.



County does not require wetland setbacks for structures, grading, filling, etc.



County requires wetland setbacks for structures, grading, filling, etc.

Wetland Protection Issue Summary

MANAGEMENT RATIONALE

Wetlands are defined by Wisconsin Statutes as “. . . an area where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which has soils indicative of wet conditions.” (s. 23.32(1), Wis. Stats.). There are many different types of wetlands including marshes, wet meadows, fens, bogs and swamps. Approximately 30% of Wisconsin’s wetlands are connected to or adjacent to lakes and streams (Wisconsin Department of Natural Resources 1998).

Wetlands play a crucial role in the maintenance of aquatic ecosystems. Chapter NR 115, Wis. Admin. Code, recognizes the following wetland functions:

- storm and floodwater capacity,
- maintenance of dry season stream flow,
- discharge of groundwater into a wetland,
- recharge of groundwater from a wetland,
- flow of groundwater through a wetland,
- filtering or storage of sediments, nutrients, heavy metals or organic compounds that would otherwise drain into navigable water,
- shoreline protection against soil erosion,
- fish spawning, breeding, nursery or feeding grounds,
- wildlife habitat, and
- areas of special recreational, scenic or scientific interest, including scarce wetlands types (Wisconsin Administrative Code NR 115.05(2)(e)(4)).

Beyond their ecological importance, wetlands are also important for a variety of economic and social reasons. They provide timber and other natural products. Wetland also support a variety of recreational activities including hunting, fishing, canoeing, bird watching and the simple appreciation of open space (Bernthal 1997).

MINIMUM STATEWIDE STANDARDS

Chapter NR 115, Wis. Admin. Code, requires all counties to establish shoreland-wetland zoning districts. This protective zoning applies to all mapped wetlands or portions of wetlands five acres or greater in size which are within:

- 1,000 feet of the ordinary high water mark of a lake, pond or flowage,
- 300 feet of the ordinary high water mark of a navigable river or stream, or
- the landward side of the floodplain.

These shoreland-wetland zoning districts generally prohibit any drainage, dredging, filling or flooding of wetlands larger than five acres. Permitted activities within the shoreland-wetland districts may include maintenance of existing drainage systems, some agricultural activities, and limited road and utility construction.

Rezoning of shoreland-wetland districts is permitted, however, if it will not result in significant adverse impacts upon the wetland’s functions. The rezoning process requires

public notice and a hearing, after which the locally elected council or board must decide whether or not to approve the rezoning. The Department of Natural Resources and local zoning agency provide recommendations on the rezoning request and can appeal the decision if it does not meet required state standards.

RELATED RESEARCH

Despite numerous protection programs and strategies, wetlands continue to be threatened. Of the approximate ten million acres of wetlands originally present in Wisconsin, only five million acres remain today.

Agriculture accounted for much of the early loss of wetlands. From the mid 1950's to mid 1970's, agriculture was responsible for nearly 87% of the wetlands lost nationally. As wetlands are drained or filled to support crops, they are unable to perform their natural functions.

Apart from agriculture, wetland losses are primarily due to residential, commercial or industrial development. Wetlands often offer the last undeveloped tracts near population centers, and as communities look to develop, these sites emerge as possible locations for development. Beyond the direct conversion of wetlands, development can also lead to the degradation of wetlands through secondary impacts, including increased runoff from projects on adjacent uplands and altered area hydrology (United States Environmental Protection Agency 1992).

MANAGEMENT INITIATIVES

Recognizing the threats facing wetlands and the important functions they fulfill, many communities have gone beyond the minimum requirements of shoreland-wetland zoning districts, and taken additional steps to protect their wetlands. Common protection strategies include establishing a wetland setback for buildings and structures (in addition to the ordinary high water mark setback), requiring permits for grading or filling in wetland areas and requiring implementation of erosion control and stormwater management plans.

Other counties have adopted or crafted wetland districts that are more encompassing than the requirements of Chapter NR 115, Wis. Admin. Code. Langlade County has a Conservancy District rather than a shoreland-wetland district. Door County has a chapter in their ordinance which addresses natural features protection, including ridge and swale complexes and wetland setbacks. Other counties have enlarged the area of wetland regulation to include ALL wetlands regardless of their size or location.

CONSIDERATIONS

- What wetlands are protected by your ordinance? Is it just shoreland-wetlands over five acres, or would it be more appropriate to include non-shoreland wetlands as well as wetlands under five acres?

- What types of actions have historically led to loss of wetlands in your community? Are there mechanisms in your ordinance to prevent or limit these types of losses today?
- Are some functions more critical in your community than others and does your ordinance requirements protect these functions? For example, in an urbanizing area, the flood storage capacity of wetlands may be very important. Is this function being whittled away as wetlands are filled for development?
- Does your community have a strong erosion control and stormwater management program to protect wetlands from secondary impacts?

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Bernthal, Thomas. 1997. *Effectiveness of shoreland zoning standards to meet statutory objectives: a literature review with policy implications*. Wisconsin Department of Natural Resources. Madison, WI.

United States Environmental Protection Agency. 1992. *Protecting coastal and wetlands resources: a guide for local governments*. United States Environmental Protection Agency. Washington, D. C.

Wisconsin Department of Natural Resources. 1998. *Upper Rock River Basin wetlands report*. On-line document:
<http://www.dnr.state.wi.us/org/gmu/uprock/surfacewaterfiles/watersheds/wetlands.html>

Abbreviations used in the following table are:

Contig. = Contiguous
 CUP = Conditional use permit
 Disturb. = Disturbances
 Exc. = Except
 Nav. = Navigable
 OHWM = Ordinary high-water mark
 PUDs = Planned Unit Developments
 Req. = Required
 s.f. = Square feet
 S.L. = Shoreland
 Struct. = Structures
 WI Wetland Inv. = Wisconsin Wetland Inventory

Wetland Protection Standards

<i>County</i>	<i>Wetland Protection</i>	<i>Wetland Setback</i>
Adams	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Ashland	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Barron	Grading permit req. for filling, grading, etc. in Shoreland-Wetland Overlay OR if 500 s.f. of wetland not in overlay, but in shoreland jurisdiction.	Not addressed in county's shoreland zoning ordinance.
Bayfield	Special land use permit req. for filling >500 s.f. of any wetland.	Not addressed in county's shoreland zoning ordinance.
Brown	Land use permit req. for filling >500 s.f. w/i 100' of any shoreland wetland.	Not addressed in county's shoreland zoning ordinance.
Buffalo	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Burnett	Land use permit required for filling/grading if (1)w/i 300' of OHWM or (2)>500 s.f. wetland not in SW-1 or W-1.	All bldgs. & structures, exc. some minor structs., setback = 40'
Calumet	Land use permit req. for filling >500 s.f. of any wetland which is contiguous to the water & w/i a shoreland area.	Not addressed in county's shoreland zoning ordinance.
Chippewa	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Clark	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Columbia	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Crawford	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Dane	Shoreland-Wetland and Inland-Wetland Dist. w/ limited uses & can be rezoned if will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Dodge	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Door	Wetland District & Natural Features Protection Requirements include ridges & swales complexes & wetland setbacks.	Setback=35', exc. in SF20 & SF30=10'.
Douglas	Resource Conservation District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Dunn	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Eau Claire	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.

<i>County</i>	<i>Wetland Protection</i>	<i>Wetland Setback</i>
Florence	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Fond du Lac	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Forest	Shoreland-Wetland Overlay District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Grant	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Green	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Green Lake	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Iowa	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Iron	Shoreland Protection Overlay w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Jackson	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Jefferson	Zoning permit req. for filling >500 s.f. of any wetland contiguous to water & not located in Shoreland-Wetland District.	Not addressed in county's shoreland zoning ordinance.
Juneau	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Kenosha	Lowland Resource Conservancy District to prevent destruction of natural or manmade resources and to protect water courses and marshes.	Shoreyard not less than 75' from OHWM of stream, lake or wetland.
Kewaunee	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
La Crosse	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Lafayette	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Langlade	Conservancy District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	25' landward of mapped wetlands.
Lincoln	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Manitowoc	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.

<i>County</i>	<i>Wetland Protection</i>	<i>Wetland Setback</i>
Marathon	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Marinette	CUP req. for any filling of a wetland contiguous to water & <2 acres on WI Wetland Inv. Maps.	Not addressed in county's shoreland zoning ordinance.
Marquette	CUP req. for filling >15,000 s.f. of wetland contig. to water, but not in shoreland-wetland dist.	Setback=75' from wetland boundary on lots that abut nav. waters.
Menominee	Shoreland-Wetland Overlay District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Monroe	CUP req. for filling of area w/i 300' water & drains to water if >500 s.f. of any wetland contiguous to water.	Not addressed in county's shoreland zoning ordinance.
Oconto	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Oneida	No land disturb. w/i 25' of wetland. Mitigation for existing road/path w/i 25'. CUP req. for struct. w/i 25'-75' of wetland & on 15%+ slopes.	No structures w/i 25' of a wetland.
Outagamie	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Ozaukee	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Pepin	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Pierce	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Polk	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Portage	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Price	Pedestrian access (stairs, walks, or lifts) only when essential for access due to steep slopes, rocky or wet, unstable soils with certain conditions.	Not addressed in county's shoreland zoning ordinance.
Racine	Shoreland-Wetland Overlay District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Richland	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Rock	Lowland/Wetland Overlay District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Rusk	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.

<i>County</i>	<i>Wetland Protection</i>	<i>Wetland Setback</i>
St. Croix	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Sauk	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Sawyer	Wetland/Shoreland One District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Nonnavigable wetland setback=40'
Shawano	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Sheboygan	Shoreland-Wetland District includes all S.L. wetlands . May be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Taylor	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Trempealeau	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Vernon	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions	Not addressed in county's shoreland zoning ordinance.
Vilas	Shoreland Alteration Permit req. in a shoreland wetland for any activity listed in 10.3.C in ordinance.	Not addressed in county's shoreland zoning ordinance.
Walworth	Lowland Resource Conservation District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Washburn	Any discharge into wetlands req. restoration of site & repair of any environmental damage.	Setback = 25' from shoreland wetlands.
Washington	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Waukesha	Conservancy-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Setback = 75'.
Waupaca	Building envelopes shall not include wetlands (in PUDs).	Nonnavigable wetlands=25' Navigable wetlands=75'
Waushara	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.
Winnebago	Boathouses must be located 5' from OHWM of wetlands.	Not addressed in county's shoreland zoning ordinance.
Wood	Shoreland-Wetland District w/ limited uses. Can be rezoned if it will not result in significant adverse impacts on wetland functions.	Not addressed in county's shoreland zoning ordinance.

Wetland Protection Ordinance Language

BURNETT COUNTY

- 4.4 (1) (f) WETLAND SETBACKS:** All buildings and structures, except stairways, walkways, piers, boat hoists, satellite dishes 1 meter or under in diameter, and open fences shall be setback 40 feet from any wetland boundary.

* * *

4.4 (4) Filling, Grading, Lagooning, Ditching, Excavating and Dredging

Filling, grading, lagooning, ditching, excavating, and dredging may be permitted in accord with state and federal law where protection against erosions, sedimentation, and impairment of fish and aquatic life has been assured. A land use permit shall be required for any filling or grading:

* * *

- (b) Of any area which is 300 feet, horizontal distance of the ordinary high water mark of navigable water where there is:
 - (1) Filling or more than 500 square feet of any wetland which is not a SW-1 or W-1 district.
 - (a) Filling, grading, lagooning, excavating or ditching in a SW-1 District may be permitted only as provided under Section 3.3(13)(a)(2) and (3).

DOOR COUNTY

5.10 Wetland setbacks.

- (1) Requirements of this section shall apply to all zoning districts in all towns.
- (2) All buildings and structures, unless specifically permitted within Wetland zoning districts per s. 2.05(4), shall be set back from wetlands, as defined in s. 13.02, a minimum of 35 feet, except for buildings and structures in SF20 and SF30 zoning districts, where the required setback from wetlands shall be 10 feet.
- (3) All wetland boundaries shall be determined by field verification by Door County Planning Staff.

LANGLADE COUNTY

17.30 (5) (c) All buildings and structures except for those permitted to be located within shoreland wetlands (see section 17.38) shall be set back at least 25 feet landward from the boundary of mapped wetlands.

ONEIDA COUNTY

9.511 PROTECTION OF SHORELAND WETLANDS

PURPOSE. Wetlands are critical natural environment features which provide habitat for native animals and plants, help purify surface and subsurface waters, and add to, or help protect, the natural appearance of the Northwoods. This section provides the minimum land use restrictions determined to be essential to protect shoreland wetlands.

APPLICABILITY. This section applies to all areas identified as shoreland wetlands on Wisconsin Wetland Inventory maps, or otherwise determined officially to be wetlands in shoreland areas, and which are not determined by the Wisconsin Department of Natural Resources to be portions of lakebeds. It does not apply to public utilities and public roads. Provisions of the Section do not supersede more restrictive requirements identified in Section 9.40 (K) Shoreland Wetland Zoning District or involving structures in a floodplain zoning district.

RESTRICTIONS.

On or after May 19, 1999, no structure shall be placed closer than 25 feet from the edge of a shoreland wetland regardless of the intervening slope. An elevated walkway may be permitted pursuant to Section 9.40 (K.) (4.) (E.).

Structures located prior to May 19, 1999, pursuant to a permit but which do not meet the requirements of Section 9.511 (C) (1) above shall be considered conforming and may remain in place if other requirements of this Ordinance are met.

Private roads, driveways, sidewalks, and walkways which do meet setback requirements of Section 9.511 (C) (1) or (2) above and constructed prior to May 19, 1999, without plat, conditional use, or other permit, may remain, but the Planning and Zoning Department may require mitigation deemed necessary to prevent adverse effects on the shoreland wetland. Mitigation measures may include control of drainage toward the shoreland wetland and planting or restoration of native ground cover, trees and other plants to prevent direct runoff into the wetland.

A conditional use permit (CUP) shall be required for placement of structures between 25 and 75 feet of the edge of a shoreland wetland on slopes which average 15 percent or more downward from the structure to the wetland. The CUP shall specify the mitigation measures deemed by the Planning and Zoning Department to be necessary to prevent adverse effects on the shoreland wetland.

Grading or other land disturbance activities less than 25 feet from a shoreland wetland except for an existing private road, are prohibited unless essential to the construction, placement, modification, or repair of a permitted structure or the construction of a road or trail used during the winter season for recreational or logging purposes. In such case, a CUP shall be required, in addition to any other required permits, which specifies the mitigation measures deemed necessary by the Planning and Zoning Department to be necessary to prevent adverse effects on the wetland.

SAWYER COUNTY

- 4.49 (1) * * * For lots that abut on nonnavigable wetlands, all buildings and structures shall be set back a minimum of 40 feet from the wetland boundary. Navigable wetlands shall be determined by the zoning administrator.

Wetland Protection Resources

PRESENTATIONS

Wetlands Stewardship: A Call to Action. (28 min., February 2000). Video serves as a companion to the "Handbook for Wetlands Conservation and Sustainability". The video can be used to motivate citizens, educators, planners, government, business leaders and students to participate in the conservation of wetland resources by demonstrating the importance of wetlands to the environment and shows activities that have been initiated in communities across the country. Available for \$25.00 (includes shipping) from the Save Our Streams Program - Catalog Orders, Izaak Walton League of America, 707 Conservation Lane, Gaithersburg, MD, 20878 or by phoning (800) 284-4952.

EDUCATIONAL MATERIALS

America's Wetlands: Our Vital Link between Land and Water. (16 pp., December 1995). A pamphlet describing the rich variety of wetlands, their importance, how they are threatened, and what can be done to conserve them for future generations. Available on-line at [<http://www.epa.gov/OWOW/wetlands/vital/wetlands.pdf>].

Building Near Wetlands: The Dry Facts (6 pp., August 1991). A handout describing the factors to consider, laws and regulations when building on land with wetlands. Available from local DNR offices or by calling Wisconsin Department of Natural Resources, Lakes and Wetlands Section, (608) 266-2244, and ask for publication number PUBL-WZ-WZ021 91.

Living with Wetlands: A Handbook for Homeowners in Northeastern Illinois. (24 pp., 1998). This handbook describes wetlands found in northeastern Illinois, protection strategies, and management techniques. The handbook is available from The Wetlands Initiative, 53 W. Jackson Blvd., #1015, Chicago, IL, 60604 or by calling (312) 922-0777.

Preserving Wetlands: Shoreland Best Management Practices. (4 pp., March 1996). Publication designed to assist property owners in understanding the values of wetlands and how best management practices (BMPs) can protect them. Available from Minnesota Extension Service at 109 Washburn Hall, 2305 East 5th Street, Duluth, MN, 55812-7512 or phoning (218) 726-7512. Ask for the Shoreland Best Management Fact Sheet #12.

Protecting Wetlands through Local Zoning for Cleaner Water, Fewer Floods, Better Fishing. (4 pp., 1993). A pamphlet providing an overview of why to protect wetlands and answering common shoreland-wetland zoning questions, such as what shoreland-wetlands are regulated, what activities are allowed in shoreland-wetland districts, and what activities are prohibited. Available from local DNR offices or by calling Wisconsin Department of Natural Resources, Lakes and Wetlands Section, (608) 266-2244, and ask for publication number PUBL-WZ-001 93 REV.

Wetland Restoration Handbook for Wisconsin Landowners. (108 pp., June 2000). A handbook for landowners interested in improving the health of their wetlands, including guidance on conservation, management and restoration techniques to improve drained, ditched or otherwise degraded wetlands. It also provides a range of activities that can improve the values and functions of wetlands. The handbook is available from the Wisconsin Wetlands Association at 222 South Hamilton Street, Suite #1, Madison, WI, 53703 or by phone at (608) 250-9971.

TECHNICAL REFERENCES

Designing Wetlands Preservation Programs for Local Governments: A Guide to Non-regulatory Protection. (164 pp., March 1992). Guidebook designed to assist local governments in developing wetland preservation programs. Chapters cover the roles of wetlands preservation programs, how to design, administer and coordinate programs, and how to conduct a wetlands inventory. Available from Washington Department of Ecology, Publications Office, Attn: Jean Witt, PO Box 47600, Olympia, WA, 98504-7600 or by phoning (360) 407-7472. Ask for publication number #92-18.

The Economic Value of Wetlands: Wetlands' Role in Flood Protection in Western Washington. (68 pp., October 1997). Report establishes a method for quantifying the economic value of wetlands for flood protection to encourage communities to protect their remaining wetlands. The report is available from Washington Department of Ecology, Publications Office, Attn: Jean Witt, PO Box 47600, Olympia, WA, 98504-7600 or by phoning (360) 407-7472. Ask for publication number 97-100. Also available on-line at: [<http://www.ecy.wa.gov/pubs/97100.pdf>].

Guidance on Developing Local Wetlands Projects: A Case Study of Three Counties and Guidelines for Others. (On-line document, November 1991). This document outlines brief case studies of three programs and identifies the types of wetland protection programs, the methods of implementation, and the successes and failures resulting from the establishment of these programs. From them, recommendations are offered to local governments on establishing local wetland programs -- a guidance "cookbook" on the types of things local governments can expect to encounter in developing and implementing such programs. This report is available from the United States Environmental Protection Agency on-line at: [<http://www.epa.gov/OWOW/wetlands/partners/local.html>].

Natural Areas: Protecting a Vital Community Asset. (148 pp., 1997). A sourcebook for local governments and citizens explaining the "whys" and "hows" of resource protection. Includes case studies and model ordinance language. Available from the Great Plains Partnership on-line at: [<http://www.greatplains.org/resource/1999/natural/natural.htm>].

Protecting Coastal and Wetlands Resources: A Guide for Local Governments. (187 pp., April 1992). A hands-on guide designed to help elected officials and concerned citizens from coastal communities learn about a variety of approaches for managing their coastal and wetlands resources. The guide contains a comprehensive review of resource

management and planning tools as well as 19 case studies. Available free of charge from NCEPI, 11029 Kenwood Road, Building 5, Cincinnati, OH 45242. Ask for document EPA842-R- 92-002.

Protecting Natural Wetlands: A Guide to Stormwater Best Management Practices. (181 pp., October 1996). This manual addresses specific water quality concerns related to wetlands and is intended for use by anyone needing to address potential impacts to wetlands from stormwater runoff. The manual presents a wide variety of planning approaches as well as specific BMPs that can be employed in a variety of situations. Available from the United States Environmental Protection Agency on-line at [<http://www.epa.gov/owow/wetlands/pdf/protecti.pdf>].

Wetland Buffers: Use and Effectiveness. (63 pp., February 1992). This report was developed to assist state agencies and local governments develop policies and standards for wetland protection. The report summarizes and evaluates scientific literature, an agency survey, and a field study on wetland buffer use and effectiveness. The report is available from Washington Department of Ecology, Publications Office, Attn: Jean Witt, PO Box 47600, Olympia, WA, 98504-7600 or by phoning (360) 407-7472. Ask for publication number 92-10. Also available on-line at: [<http://www.ecy.wa.gov/pubs/92010.pdf>].